

Highway Construction and Upgrades. The construction of the Sloan/Jean intermodal transfer station would have the same utilities, energy and materials impacts as those discussed in Section 6.3.3.1.

Table 6-113 lists the estimated quantities of primary materials for the upgrade of Nevada highways for the Sloan/Jean route. These quantities are not likely to be very large in relation to the southern Nevada regional supply capacity (see Section 6.3.3.1).

Table 6-113. Utilities, energy, and materials required for upgrades along the Sloan/Jean route.

Route	Length (kilometers) ^a	Diesel fuel (million liters) ^b	Gasoline (thousand liters)	Asphalt (million metric tons) ^c	Concrete (thousand metric tons)	Steel ^d (metric tons)
Sloan/Jean	188	1.7	27	0.24	0.1	2.3

a. To convert kilometers to miles, multiply by 0.62137.

b. To convert liters to gallons, multiply by 0.26418.

c. To convert metric tons to tons, multiply by 1.1023.

d. Steel includes rebar only.

Operations. Section 6.3.3.1 discusses utilities, energy, and materials needs for operation of an intermodal transfer station.

Fossil fuel that would be consumed by heavy-haul trucks during operations is discussed in Chapter 10, which addresses irreversible commitments of resources.

6.3.3.2.5 Apex/Dry Lake Route Implementing Alternative

The Apex/Dry Lake route (Figure 6-26) is about 183 kilometers (114 miles) long. Heavy-haul trucks and escorts would leave the intermodal transfer station at the Apex/Dry Lake location and enter I-15 at the Apex interchange. The trucks would travel south on I-15 to the exit to the proposed northern Las Vegas Beltway and travel west on the Beltway. They would leave the Beltway at U.S. 95, and travel north on U.S. 95 to the Mercury entrance to the Nevada Test Site. The trucks would travel on Jackass Flats Road on the Nevada Test Site to the Yucca Mountain site. The travel time (vehicle in motion plus periodic short stops for inspections) associated with an Apex/Dry Lake route would be as much as 4 hours.

The potential sites for the Apex/Dry Lake intermodal transfer station are in areas northeast of Las Vegas between the Union Pacific rail sidings at Dry Lake and at Apex. Three areas are available for station siting (see Figure 6-26). The first area is directly adjacent to the Dry Lake siding. This area is large [3.5 square kilometers (880 acres)] and has flat topography; it is adjacent to and west of the Union Pacific line. The second is a smaller area [0.18 square kilometer (45 acres)] on the same side of the Union Pacific mainline, a short distance northeast of the 3.5-square-kilometer area, and also has flat topography. This area would be used in combination with a portion of the first area. These two areas are bounded by hills to the north and by a wash and private land to the south. The third area, which is east of I-15, is adjacent to and west of the Union Pacific line and south of where the line crosses I-15. This location has an area of 0.96 square kilometer (240 acres). Because this area is between the Dry Lake and Apex sidings, the construction of an additional rail siding would be necessary. The estimated life-cycle cost to build and operate an intermodal transfer station and to operate heavy-haul trucks along the Apex/Dry Lake route would be about \$387 million in 2001 dollars.

The following sections address impacts that would occur to land use; air quality; hydrology; biological resources and soils; cultural resources; occupational and public health and safety; socioeconomics; noise and vibration; and utilities, energy, and materials. Impacts to hydrology from the construction and operation of an intermodal transfer station, upgrading of highways, and operation of heavy-haul trucks on an Apex/Dry Lake route would be the same as those discussed in Section 6.3.3.2.4 for a Sloan/Jean route.

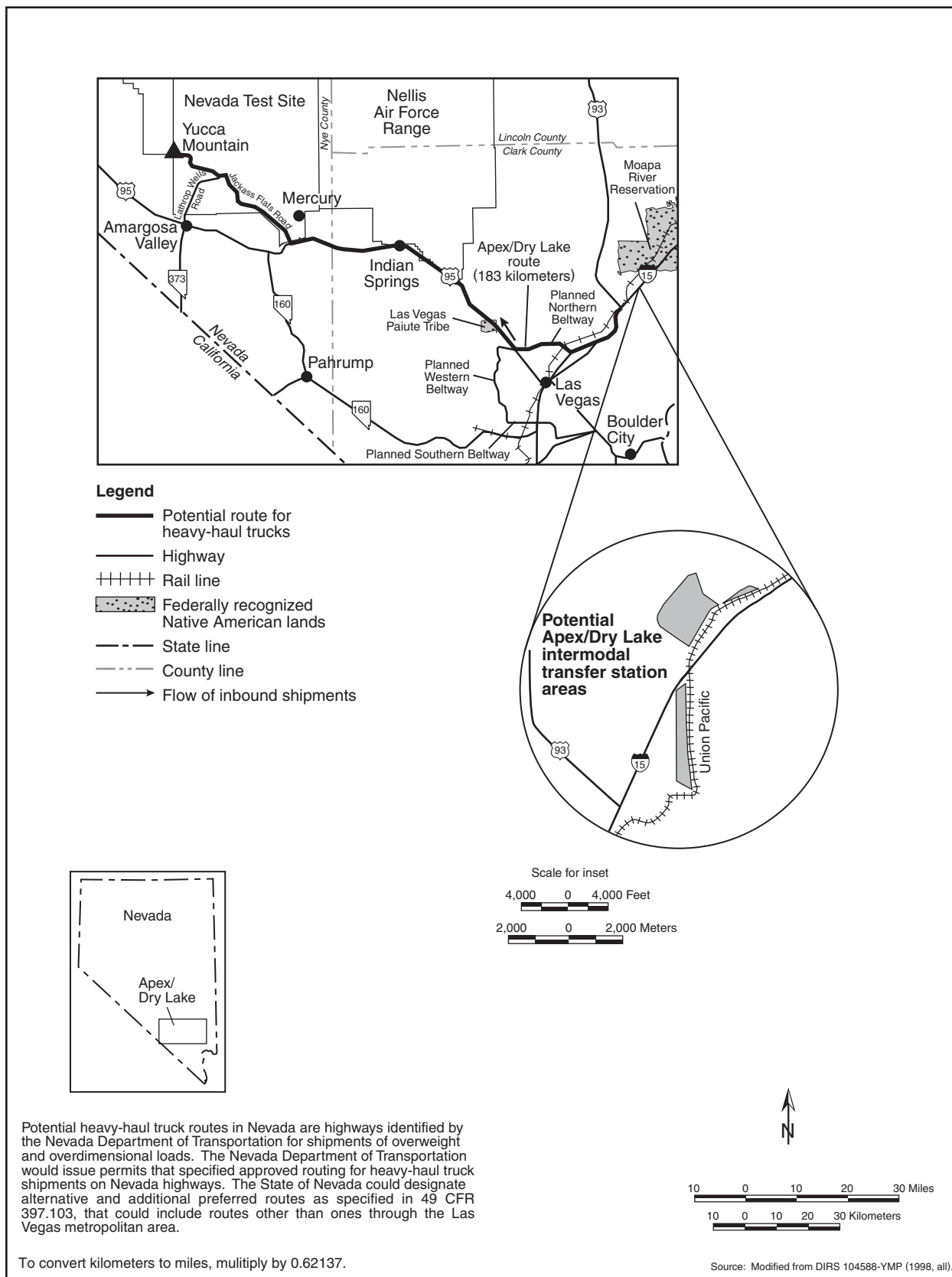


Figure 6-26. Apex/Dry Lake heavy-haul truck route.

Impacts to aesthetics and waste management would be the same as those discussed in Section 6.3.3.1 and are, therefore, not repeated here. Section 6.3.4 discusses the potential for transportation activities to cause environmental justice impacts in Nevada.

6.3.3.2.5.1 Apex/Dry Lake Route Land Use and Ownership

This section describes estimated land-use impacts that could occur from the construction and operation of the Apex/Dry Lake intermodal transfer station, upgrades of highways, and heavy-haul truck operations on the Apex/Dry Lake route. Chapter 3, Section 3.2.2.2.1, describes the Apex/Dry Lake intermodal transfer station site and associated truck route.

Highway Construction and Upgrades. The Apex/Dry Lake intermodal transfer station site could have potential impacts related to the current use of the land. The southern intermodal transfer station parcel east of I-15 at the Apex/Dry Lake site is on land administered by the Bureau of Land Management. Transfer of the property to DOE would be necessary. The northern areas have several infrastructure corridors (power line, telephone, and road rights-of-way). Right-of-way access through these areas would have to be leased by, purchased by, or transferred to DOE. The northern parcels are in the Dry Lake grazing allotment and a planned utility corridor. It is also open to mineral leasing and mining claims. One area has been designated as available for sale or transfer. This site also is in the area of the Apex Industrial Park that began development in mid-1999.

The parcel in the grazing allotment would lose a small parcel of land, if chosen. However, due to the proximity of the parcel to existing roads and rail lines, the transfer of this land to DOE would not divide the grazing allotment and would cause no livestock movement or watering problems.

The relatively small area of an intermodal transfer station location would not create long-term impacts to mineral exploration or mining claims unless the lands are already leased. If there were leases, DOE would negotiate with the lease holders for use of the property.

Because the transfer station parcels are in an area designated for sale or transfer by the Bureau of Land Management, the Bureau would have to remove the lands from this program to transfer them to DOE. The removal of these lands from the sale/transfer program could affect private, municipal or county, or other stakeholders. Tax revenue could be lost through the loss of economic development. This impact could be mitigated by the replacement of removed land with other parcels with similar characteristics. This route would require the disturbance of 0.63 square kilometer (155 acres) of land for road upgrades and additional construction activities. Table 6-114 summarizes these disturbances.

The Apex/Dry Lake route would require considerable improvements at the interchange at I-15. A small amount of land would be converted for the improvements. Section 6.3.3.1 discusses impacts on land use from upgrading Nevada highways for use by heavy-haul trucks.

Operations. There would be no direct land-use impacts associated with the operation of the Apex/Dry Lake intermodal transfer station or the Apex/Dry Lake route other than those described in Section 6.3.3.1.

6.3.3.2.5.2 Apex/Dry Lake Route Air Quality

This section describes anticipated nonradiological air quality impacts from the construction and operation

Table 6-114. Land disturbances along the Apex/Dry Lake heavy-haul truck route.

Disturbances	Area disturbed ^a (square kilometers) ^b
Haul road disturbed area	0.47
Aggregate plants	0.08
Road widening	None
Passing lanes	None
Truck turnouts	None
Fortymile Wash new road	0.04
Overnight stops	None
Mercury turnoff road	0.03
Total disturbed area	0.63

a. Numbers approximate due to rounding.

b. To convert square kilometers to acres, multiply by 247.1.

of an intermodal transfer station, highway construction and upgrades, and operation of heavy-haul trucks along the Apex/Dry Lake route. Such impacts would result from releases of criteria pollutants, nitrogen dioxide, sulfur dioxide, carbon monoxide, and particulate matter (PM₁₀) (see Section 6.3.3.1). Carbon monoxide and PM₁₀ are of particular interest along the Apex/Dry Lake Route because heavy-haul truck transport would occur through the Las Vegas Basin, which is classified as a nonattainment area for these pollutants. PM₁₀ and carbon monoxide emissions from intermodal transfer station construction are presented in Section 6.3.3.1. Intermodal transfer station construction emissions would be 15 percent of the PM₁₀ General Conformity threshold level and would be 2.3 percent of the carbon monoxide General Conformity threshold level.

Highway Construction and Upgrades. Section 6.3.3.1 discusses the methods used to estimate air quality impacts from the construction activities for the Apex/Dry Lake route. PM₁₀ emissions would be an estimated 45 metric tons (50 tons) per year, including estimated emissions for the accelerated construction activities of the northern portion of the Las Vegas Beltway. These emissions would be 71 percent of the General Conformity threshold level. Carbon monoxide emissions for highway construction and upgrades would be an estimated 35 metric tons (39 tons) per year. These emissions are 39 percent of the carbon monoxide General Conformity threshold level.

Operations. The air quality impacts for the operations of an intermodal transfer station locomotive at the Apex/Dry Lake intermodal transfer station would be identical to those described for the Sloan/Jean station (see Section 6.3.3.2.4). In addition, heavy-haul trucks would pass through the Las Vegas Valley air basin. The air quality impacts from the heavy-haul trucks to this air basin would be small [0.46 metric tons (0.51 ton) per year carbon monoxide] with emissions at less than 1 percent of the General Conformity threshold level. These emissions would result from 11 roundtrip heavy-haul trucks traveling through the Las Vegas Valley each week.

6.3.3.2.5.3 Apex/Dry Lake Route Hydrology

DOE anticipates limited impacts to surface water and groundwater during upgrades to Nevada highways so they could accommodate daily use by heavy-haul trucks. This section discusses these impacts as well as those from the construction and operation of an intermodal transfer station and operation of trucks on the Apex/Dry Lake route. Section 6.3.3.1 discusses the hydrology impacts that would be common to all of the heavy-haul truck implementing alternatives. This section focuses on the hydrology impacts that would be unique to the Apex/Dry Lake heavy-haul truck implementing alternative.

Surface Water

Section 6.3.3.1 discusses the impacts to surface water from the construction and operation of an intermodal transfer station and upgrades to highways. The common impacts discussed in that section apply to surface water along the Sloan/Jean route.

The assessment in Appendix L presents a comparison of what is known about the floodplains, springs, and riparian areas at the three candidate intermodal transfer sites (see Sections L.3.2.7 and L.4.2.2). The southern most of the three locations considered for the Apex/Dry Lake intermodal transfer site appears to be, at least in part, within a 100-year flood zone of a normally dry drainage channel (see Section L.3.2.7).

Groundwater

Highway Construction and Upgrades. Section 6.3.3.1 discusses the impacts to groundwater from the construction of an intermodal transfer station. Upgrades to the Apex/Dry Lake route would not require any water wells. The road upgrades would require an estimate total of about 9,200 cubic meters (8 acre-feet) of water (DIRS 104917-LeFever 1998, all). Options for obtaining this water would be to lease temporary water rights from individuals along the route, ship water from other permitted resources by truck (about 500 truckloads) to construction sites, or use a combination of these two actions.

Operations. Section 6.3.3.1 discusses impacts to groundwater from the operation of an intermodal transfer station, highway maintenance, and heavy-haul routes.

6.3.3.2.5.4 Apex/Dry Lake Route Biological Resources and Soils

Section 6.3.3.1 discusses impacts to biological resources from the construction and operation of an intermodal transfer station and upgrades to highways that would be common to all intermodal transfer stations and routes. This section discusses the construction- and operations-related impacts that would be unique to the Apex/Dry Lake intermodal station and route.

Highway Construction and Upgrades. DOE has identified three areas for the construction of an Apex/Dry Lake intermodal transfer station. The predominant land cover type at these sites (creosote-bursage) and it is extensively distributed in the region (DIRS 104593-CRWMS M&O 1999, pp. 3-36 and C1 to C5). Considerable industrial development has occurred near the potential sites. The three sites are in the range of the threatened desert tortoise, although none is in an area considered to be critical habitat for the tortoise (50 CFR 17.95). The construction site would disturb approximately 0.2 square kilometer (50 acres) of desert tortoise habitat. The likelihood of death or injury to tortoises due to construction activities would be small if DOE conducted surveys for tortoises in areas to be disturbed and moved tortoises in the immediate area out of harm's way. Geyer's milk vetch (BLM sensitive) occurs on the southern edge of one of the proposed locations of the Apex/Dry Lake intermodal transfer station (DIRS 104593-CRWMS M&O 1999, p. 3-37). If this location for an intermodal transfer station was selected, DOE would conduct pre-activity surveys for this plant's species and would avoid occupied habitat if possible. There are no designated game habitats at the proposed locations for the intermodal transfer station, or any springs or other areas that could be classified as wetlands (DIRS 104593-CRWMS M&O 1999, p. 3-37).

The predominant land cover types along the Apex/Dry Lake heavy-haul truck route are creosote-bursage and Mojave mixed scrub, which are common throughout this region (DIRS 104593-CRWMS M&O 1999, pp. 3-34, and C1 to C5). Because areas disturbed by upgrade activities would be in or adjacent to the existing rights-of-way and the areas have been previously degraded by human activities, impacts would be small.

The only resident threatened or endangered species that occurs along the Apex/Dry Lake route is the desert tortoise. Desert tortoise habitat occurs along the entire length of the route (DIRS 103160-Bury and Germano 1994, pp. 57 to 72; 50 CFR 17.95). Construction activities could kill or injure desert tortoises; however, losses would be few because construction would occur only on the right-of-way and desert tortoises are uncommon adjacent to heavily traveled roads (DIRS 103160-Bury and Germano 1994, Appendix D, p. D12). Three other special status species occur along this route (DIRS 104593-CRWMS M&O 1999, p. 3-35) but because construction activities would be limited to the road and adjacent areas, occupied habitat would not be destroyed and these species should not be affected.

This route would not cross any areas designated as game habitat or springs or possible wetlands (DIRS 104593-CRWMS M&O 1999, p. 3-35). The corridor crosses a number of ephemeral streams that may be classified as waters of the United States. DOE would work with the State of Nevada and the U.S. Army Corps of Engineers to minimize impacts to these areas, and obtain individual, regional, or nationwide permits, as appropriate. Impacts to soils would be transitory and small and would occur only along the shoulders of existing roads.

Operations. Impacts from operations would include periodic disturbances of wildlife from activities at the intermodal transfer station and additional truck traffic along this route. Trucks probably would kill individuals of some species but losses would be few and unlikely to affect regional populations of any species. No additional habitat loss would occur during operations. Impact to soils would be small.

6.3.3.2.5.5 Apex/Dry Lake Route Cultural Resources

Highway Construction and Upgrades. A total of 51 archaeological and historic sites have been recorded along the highway rights-of-way that comprise the Apex/Dry Lake intermodal transfer station site and heavy-haul truck route (DIRS 155826-Nickens and Hartwell 2001, all). None of these previously recorded cultural sites are in locations proposed for upgrades.

There are no recorded cultural resources that would be affected by the construction of an Apex/Dry Lake intermodal transfer station. However, an original segment of the historic Arrowhead Trail Highway passes through the northern intermodal transfer station site location, and includes the archaeological remains of a motel and gas station. Based on previous archaeological studies in the larger area, there is a probability that there are one or more construction camps from the initial railroad construction era in the proposed intermodal transfer station locations as well.

The route follows a portion of U.S. 95 that passes through approximately 1.6 kilometers (1 mile) of the Las Vegas Paiute Reservation. The intermodal transfer station would be along I-15, about 3 kilometers (2 miles) south of the Moapa Paiute Reservation. Construction of the intermodal transfer station and use of U.S. 95 for this route would not have adverse impacts on Native American sites or values.

Operations. Use of an Apex/Dry Lake intermodal transfer station and heavy-haul truck route would not involve impacts (such as disturbing the sites or crushing artifacts) to known cultural resource sites.

6.3.3.2.5.6 Apex/Dry Lake Route Occupational and Public Health and Safety

This section addresses potential impacts to occupational and public health and safety from upgrading highways and heavy-haul truck operations on the Apex/Dry Lake route. The impacts of the Apex/Dry Lake intermodal transfer station would be the same as those discussed in Section 6.3.3.1.

Table 6-115. Impacts to workers from industrial hazards from upgrading highways along the Apex/Dry Lake route.

Group and trauma category	Construction ^a	Operations ^b
<i>Involved workers</i>		
Total recordable cases ^c	22	120
Lost workday cases	11	66
Fatalities	0.03	0.33
<i>Noninvolved workers^d</i>		
Total recordable cases	1.3	6.8
Lost workday cases	0.5	2.5
Fatalities	0.001	0.007
<i>Totals^e</i>		
Total recordable cases	23	130
Lost workday cases	11	68
Fatalities	0.032	0.34

a. Impacts are totals over about 28 months.

b. Includes periodic maintenance and resurfacing. Impacts are totals over about 24 years.

c. Total recordable cases includes injury and illness.

d. The noninvolved worker impacts are based on 25 percent of the involved worker level of effort.

e. Totals might differ from sums due to rounding.

Highway Construction and Upgrades. Industrial safety impacts on workers from upgrading highways for the Apex/Dry Lake route would be small (see Table 6-115). The analysis evaluated the potential for impacts in terms of total reportable cases of injury, lost workday cases, fatalities for workers, and traffic fatalities related to commuting workers and the movement of construction materials and equipment. Table 6-116 lists the estimated fatalities from construction and commuter vehicle traffic.

Operations. Incident-free radiological impacts listed in Table 6-117 would occur during the routine transportation of spent nuclear fuel and high-level radioactive waste on the route. These impacts would include transportation along the route as well as transportation along railways in Nevada leading to an Apex/Dry Lake intermodal transfer station. The table includes the impacts of 1,079 legal-weight truck shipments from commercial sites that do not have the capability to load rail casks while operational.

Table 6-116. Estimated number of fatalities from construction material delivery vehicles and construction and operations worker commuting traffic for the Apex/Dry Lake route for heavy-haul trucks.^a

Activity	Kilometers ^b	Traffic fatalities	Vehicle emissions fatalities
<i>Construction^c</i>			
Material delivery vehicles	15,000,000	0.3	0.03
Commuting workers	20,000,000	0.2	0.03
<i>Subtotals</i>	<i>35,000,000</i>	<i>0.5</i>	<i>0.06</i>
<i>Operations^d</i>			
Commuting workers	120,000,000	1.2	0.16
Totals	160,000,000	1.7	0.22

a. Includes impacts of construction and operation of an intermodal transfer station.

b. To convert kilometers to miles, multiply by 0.62137.

c. Impacts are totals over about 28 months.

d. Impacts are totals over 24 years.

Table 6-117. Health impacts^a from incident-free Nevada transportation for the Apex/Dry Lake heavy-haul truck implementing alternative.

Category	Legal-weight truck shipments	Rail and heavy-haul truck shipments ^b	Totals ^c
<i>Involved workers</i>			
Collective dose (person-rem)	38	1,100	1,100
Estimated latent cancer fatalities	0.02	0.44	0.46
<i>Public</i>			
Collective dose (person-rem)	7	150	160
Estimated latent cancer fatalities	0.003	0.08	0.08
<i>Estimated vehicle emission-related fatalities</i>	0.002	0.064	0.066

a. Impacts are totals for 24 years.

b. Includes impacts to workers at an intermodal transfer station.

c. Totals might differ from sums of values due to rounding.

6.3.3.2.5.7 Apex/Dry Lake Route Socioeconomics

This section describes potential socioeconomic impacts that would occur from upgrading highways along an Apex/Dry Lake route, advancing the construction schedule for a section of the planned Las Vegas Beltway to accommodate heavy-haul trucks, and building an intermodal transfer station. The section also describes socioeconomic impacts from the operation of an intermodal transfer station in Clark County and the periodic resurfacing of highways.

This analysis of economic measures assumed that Clark County would secure a loan to advance the construction schedule of the section of the Las Vegas Beltway that would be part of this heavy-haul truck route. The analysis based the estimates for a range of impacts on two sources of information from Clark County about the cost of building a section of the Beltway. Modifications to the Beltway would cost between \$40 million (DIRS 103710-Clark County 1997, p. 2-7) and \$425 million in 1998 dollars (DIRS 155112-Berger Group 2000, p. 29) (about \$43.6 million to \$463 million in 2001 dollars). DOE believes the actual cost would be between these values. A loan to Clark County for \$43.6 million or \$463 million, at an annual rate of 3 percent, with the repayment of the loan starting in 2010 and lasting for 30 years, is a part of the modeling to determine the impacts to employment, population, real disposable income, and expenditures by State and local governments. (A *real* percentage rate is the premium paid in addition to the rate of inflation; a real rate plus the rate of inflation equals the nominal or quoted rate.) Clark County would repay the loan from tax revenues. DOE assumes most repayment funds would be from sources the county has already identified for completion of the Beltway.

Highway Construction and Upgrades. Socioeconomic impacts from upgrading highways for an Apex/Dry Lake route, advancing the schedule for construction of a portion of the Las Vegas Beltway, and building an intermodal transfer station would be temporary, occurring over a short period and spread among the counties along the route. The highway upgrades, excluding the Beltway, would cost \$20.8 million, require about 28 months to complete, and occur during the 48-month construction period for the Beltway. Building an intermodal transfer station would cost about \$25.0 million and take 18 months to complete. If this route was selected, the construction schedule of the planned Las Vegas Beltway would be advanced. (Dollar values reported in this section are 2001 dollars unless otherwise stated.)

This discussion expresses values for socioeconomic measures (employment, population, real disposable income, Gross Regional Product, and State and local government expenditures) and for potential impacts that would change in those measures as a range of values. The first value refers to the outcome if the Beltway cost is \$43.6 million; the second refers to the outcome if the Beltway cost is \$463 million. DOE anticipates that the actual change would be between the two values.

Employment

Employment in the region of influence of construction workers involved with upgrading the highways (including the Beltway) or with building an intermodal transfer station (direct workers) and other workers who would be employed as a result of the economic activity generated by the project (indirect workers) would peak in 2008. Employment increases would be between 490 and 1,882 jobs. The increase in employment in Clark County would be between 482 and 1,848 workers, Nye County would gain between 6 and 27 workers, and Lincoln County would gain between 1 and 5 workers. The increases in Clark, Nye, and Lincoln Counties would be less than 1 percent of the employment baseline for each county.

Population

The increase in employment would also bring population increases in the region of influence that would peak in 2009. During that year, the incremental increase in population would be between 356 and 1,857 individuals. Clark County would experience about 97 percent of this impact. The increase in population for Clark County would be between 347 and 1,812, for Lincoln County between 0 and 5, and for Nye County between 7 and 39. The impact from an increase in population as a result of increased employment opportunities would be less than 1 percent of each county's population baseline. Because the increases in population in each county would be small and transient, impacts to schools or housing would be unlikely.

Economic Measures

Economic measures would rise during the construction of an intermodal transfer station and the upgrading of highways and Las Vegas Beltway. The increase in real disposable income of people in the three-county region of influence would peak in 2008 at between \$15.7 million and \$62.0 million. The region-wide increase in Gross Regional Product would peak in 2008 at between \$28.9 million and \$99.8 million. Increased State and local government expenditures would peak in 2009 at between \$1.2 million and \$6.1 million. More than 97 percent of this economic activity would be concentrated in Clark County. The Gross Regional Product, real disposable income, and expenditures by State and local governments would rise by less than 1 percent in Clark, Nye, and Lincoln Counties. (All dollar values reported in this section are in 2001 dollars unless otherwise stated.)

Transition to Operations. In the region of influence, employment of Apex/Dry Lake heavy-haul truck route workers and indirect (support) workers would decrease by 419 to 2,026 when construction of the intermodal transfer station and highway upgrades (including the Beltway portion) ended in 2009. Clark County would lose between 412 and 1,993 of these jobs, Nye County would lose between 6 and 28 of these jobs, and Lincoln County would lose between 1 and 5 jobs. DOE anticipates that some of the displaced workers would move into operational positions on the Apex/Dry Lake route while others would

find other work in the State. While this project would lose jobs, employment projections for the State estimate approximately 1.4 million jobs in 2010, or about 999,500 in the region of influence.

Operations. Operations at an intermodal transfer station and the use of heavy-haul trucks would begin in 2010 and continue until 2033. A direct workforce of about 26 would be required for the intermodal transfer station. Direct employment for heavy-haul truck operations over an Apex/Dry Lake route, including Clark County-based shipment escorts, would be about 66 workers. DOE assumed that operations workers would reside in Clark County.

To analyze the socioeconomic impacts of operations for an Apex/Dry Lake route, DOE considered three activities: operation of the intermodal transfer station, operation of the heavy-haul trucks, and maintenance of the highways and the Las Vegas Beltway.

Employment and Population

Employment in the region of influence associated with the operations of an intermodal transfer station and heavy-haul trucks would average about 99 workers, all of whom would work in Clark County. The impact on population from these two activities would be an average of 129 workers of whom 127 would live in Clark County. These impacts to employment and population would be less than 1 percent of the baseline in Clark County. During periodic road resurfacing, employment (direct and indirect) in the region would increase by about 107 workers for 2 years. DOE assumed that all of these workers would come from Clark County-based firms. Overall, employment increases from periodic highway resurfacing projects (every 8 years starting in 2016) would be less than 1 percent of the baseline for Clark County. Given the short duration of each resurfacing project, there would be no perceptible change in the region's population.

Net changes to employment and population from all three portions of the Apex/Dry Lake heavy-haul truck route during the 24-year operations phase can be summarized. There would be an incremental increase of 90 positions in the region of influence, with 89 of the additional positions in Clark County if the cost of the beltway was approximately \$43.6 million. The region of influence would experience a growth in population of an additional 137 residents, 132 of them in Clark County. This impact would be less than 1 percent of the baseline. If the cost of the beltway reaches \$463 million, the region of influence (while continuing to grow to an average of 1.1 million jobs), would have 242 fewer employment positions, with 241 of these in Clark County. Population, which is driven by employment, would be affected. The region of influence would have 511 fewer residents and Clark County would have 519 fewer residents. The impacts at the upper range of the cost estimates would be less than 1 percent of the baselines. Because the impacts would be so small, impacts to housing or schools would be unlikely.

Economic Measures

Impacts from changes to the economic measures of real disposable income, Gross Regional Product, and expenditures by State and local governments from operating an intermodal transfer station at Apex/Dry Lake, operating heavy-haul trucks, and maintaining the highways would fluctuate throughout the operations period and would depend partially on changes in population and employment. If the beltway cost was at the lower end of the cost estimate, real disposable income and Gross Regional Product in the region of influence would rise during the operations period. The increase in real disposable income would average \$3.6 million and in Gross Regional Product would average \$8.2 million. Expenditures by governments would increase over the 24-year period by an average of \$479,000. Virtually all of the activity would be concentrated in Clark County and would be less than 1 percent of the various baselines. If the final cost of the beltway was \$463 million, the impacts would be more visible but still less than 1 percent of the applicable baselines. Real disposable income would decline from \$4.0 million above the baseline in 2010 to \$35.6 million below the baseline by 2033, an average of slowing growth in this area of \$29.2 million. The region of influence would have an average real disposable income of \$55,797,000 during this period. Gross Regional Product would remain below the baseline, averaging \$11.2 million

annually. Expenditures by government would decline from \$5.4 million above the baseline in 2010 to \$4.5 million below the baseline in 2033. The average would be a slowing of spending by \$1.9 million. As population growth slows, there would be a slowing in the rate of tax revenues collected and a slowing in the rate of population growth that would require a given level of services.

6.3.3.2.5.8 Apex/Dry Lake Route Noise and Vibration

Section 6.3.3.1 discusses noise impacts common to all the heavy-haul truck implementing alternatives. This section focuses on noise impacts that would be unique to the Apex/Dry Lake heavy-haul truck implementing alternative.

Highway Construction and Upgrades. There is one residence near the Dry Lake site of the three tracts of land identified for an intermodal transfer station. Construction noise would occur during daylight hours and would be a temporary source of elevated noise in the area. Nighttime noise impacts would be unlikely because construction activities would not occur at night.

For the Apex/Dry Lake route, northern Las Vegas, the Town of Indian Springs, and the rural community of Cactus Springs are within the 2,000-meter (6,600-foot) region of influence for construction noise. Construction activities would occur at the I-15 interchange at Apex and along sections of U.S. 95. The route, which passes north of Las Vegas, is not heavily populated and the potential for noise-related construction impacts would be low.

Operations. An Apex/Dry Lake intermodal transfer station would be isolated, with one residence (DIRS 155825-Poston 2001, all) in the vicinity, adjacent to an existing rail line. The potential for noise impacts is unlikely unless operations were close to this residence.

The Apex/Dry Lake route would be confined to established highways with wide shoulders. Background traffic noise levels would be greatest along the planned northern Beltway, reducing the potential for heavy-haul truck noise to affect public receptors adversely during daylight hours. The incremental noise increase due to the infrequent heavy-haul truck shipments would not alter the existing noise environment. Estimated noise levels (1-hour average sound levels) at Indian Springs and Cactus Springs would increase by about 0.4 dBA [at 15 meters (44 feet) from the road] due to heavy-haul truck traffic. A potential receptor is the public school in Indian Springs, which also serves students from Cactus Springs. The Indian Springs school is about 300 meters (980 feet) south of U.S. 95. The incremental contribution of heavy-haul trucks at this distance from the highway would not be perceptible. No historic buildings would be affected by ground vibration. No sensitive ruins of cultural significance have been identified along this route.

The Apex/Dry Lake intermodal transfer station is about 3 kilometers (2 miles) from the Moapa Reservation. Assuming that the greatest source of noise would be locomotives, estimated noise levels at 520 meters (1,700 feet) would be 45 dBA. Noise generated at the intermodal transfer station would not be perceptible 910 meters (3,000 feet) away at the border of the Moapa Reservation. The Apex/Dry Lake heavy-haul truck route on U.S. 95 also passes through about 1.6 kilometers (1 mile) of the Las Vegas Paiute Reservation. Because of the relatively large traffic volume on U.S. 95, the increase in traffic noise due to heavy-haul trucks in this area would not be perceptible (DIRS 155825-Poston 2001, all).

6.3.3.2.5.9 Apex/Dry Lake Route Utilities, Energy, and Materials

Section 6.3.3.1 discusses the utilities, energy, and materials impacts that would be common to all the heavy-haul truck implementing alternatives. This section focuses on the utilities, energy and materials impacts that would be unique to the Apex/Dry Lake heavy-haul truck implementing alternative.

Highway Construction and Upgrades. The construction of the Apex/Dry Lake intermodal transfer station would have the same utilities, energy, and materials impacts as those discussed in Section 6.3.3.1.

Table 6-118 lists the estimated quantities of primary materials for the upgrade of Nevada highways for the Apex/Dry Lake route. These quantities are not likely to be very large in relation to the southern Nevada regional supply capacity (see Section 6.3.3.1).

Table 6-118. Utilities, energy, and materials required for upgrades along the Apex/Dry Lake route.

Route	Length (kilometers) ^a	Diesel fuel (million liters) ^b	Gasoline (thousand liters)	Asphalt (million metric tons) ^c	Concrete (thousand metric tons)	Steel ^d (metric tons)
Apex/Dry Lake	182	1.6	29	0.23	0.1	2.3

a. To convert kilometers to miles, multiply by 0.62137.

b. To convert liters to gallons, multiply by 0.26418.

c. To convert metric tons to tons, multiply by 1.1023.

d. Steel includes rebar only.

Operations. Section 6.3.3.1 discusses the utilities, energy, and materials needs for the operation of an intermodal transfer station.

Fossil fuel that would be consumed by heavy-haul trucks during operations is discussed in Chapter 10, which addresses irreversible commitments of resources.

6.3.4 ENVIRONMENTAL JUSTICE IMPACTS IN NEVADA

The analysis considered existing highways and railroads that DOE would use in Nevada—I-15, the proposed Las Vegas Beltway; U.S. 95; five possible highway routes for heavy-haul trucks; the Union Pacific Railroad's mainlines in northern and southern Nevada; and five corridors with variations for a possible branch rail line in the State. If DOE constructed and operated the repository, it would use combinations of these routes for shipments of spent nuclear fuel and high-level radioactive waste. DOE would use alternative preferred routes designated by the State of Nevada for highway shipments to the repository.

In general, the consequences of using a transportation route would occur close to the route. Thus, for transportation on a highway or railroad to affect a census block group for which environmental justice concerns could exist, the route would have to cross or be adjacent to the block group. Chapter 3, Section 3.1.13 discusses and depicts the minority and low-income populations in Nevada.

Portions of some routes would cross or be adjacent to Native American tribal lands. Existing or proposed highway routes avoid census block groups with high fractions of minority, low-income, or Native American populations with the exceptions of:

- Sections of I-15 that pass through the center of the Moapa Reservation northeast of Las Vegas, Nevada
- A 1.6-kilometer (1-mile) section of U.S. 95 across the southwest corner of the Las Vegas Paiute Indian Reservation that could be used by legal-weight trucks as well as either the Caliente/Las Vegas or Apex/Dry Lake heavy-haul truck route
- The Caliente/Las Vegas and Apex/Dry Lake routes for heavy-haul trucks, which would pass near the Moapa Reservation
- Sparsely populated areas of census block groups in the northern parts of Clark County